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MORGAN & FINNEGAN, L.L.P.  
345 Park Avenue  
New York, NY 10154

EXAMINER
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LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/987,932

Applicant(s)

KIRKBRIDE ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment submitted on October 12, 2004 has been received and carefully considered. The changes made to the Specification are acceptable. Claims 1-22 are cancelled. Claims 23-54 remain active.

### ***Claim Objections***

2. Claims 23, 34, 50 and 51 are objected to because of the following informalities:

In claim 23, -- and -- should be inserted at the end of line 10.

In claim 34, -- and -- should be inserted at the end of line 10.

In claim 50, -- and -- should be inserted at the end of line 9.

In claim 51, -- and -- should be inserted at the end of line 9.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 23-54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Regarding claims 23 and 34, it is unclear as to where in applicant's disclosure support may be found for the newly added limitation of, "said reactor having an operating temperature

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about 1500°F or lower,” (line 9). For example, the specification (page 8, lines 19-23) merely provides support for operating temperature of “between 800°F and 900°F, preferably closer to 800°F”. In another example, the specification (page 25, lines 5-7) merely provides support for a “reaction temperature of about 900°F to about 1000°F”. Furthermore, the disclosure appears to be silent as to a temperature range having no lower limit.

Regarding claims 50 and 51, it is unclear as to where in applicant’s disclosure support may be found for the newly added limitation of, “said reactor having an operating temperature of about 1000°F or lower,” (line 5). For example, the specification (page 8, lines 19-23) merely provides support for operating temperature of “between 800°F and 900°F, preferably closer to 800°F”. In another example, the specification (page 25, lines 5-7) merely provides support for a “reaction temperature of about 900°F to about 1000°F”. Furthermore, the disclosure appears to be silent as to a temperature range having no lower limit.

Additionally, it is unclear as to where in applicant’s disclosure support may be found for the newly added limitation of, “an operating pressure of 450 psi or greater,” (lines 5-6). For example, the specification (page 9, lines 1-3, and page 25, lines 5-7) merely provides support for a pressure of, “about 600 psi”.

Additionally, it is unclear as to where in applicant’s disclosure support may be found for the newly added limitation of, “hydrogen fed to said reactor at a temperature of about 1500°F or lower,” (lines 7-8). For example, the specification (page 13, lines 9-12) merely provides support for a temperature of “about 1200°F”. Additionally, the specification (page 25, line 2) merely provides support for a temperature of “about 1500°F”. The disclosure appears to be silent as to a temperature range having no lower limit.

***Claim Rejections - 35 USC § 102 and 35 USC § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 34, 35, 38, 40-46, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoekstra (US 3,565,751).

Regarding claim 34, Hoekstra (Figure) discloses a reactor system comprising:  
a fluidized bed reactor (reactor vessel 10),

having a feed inlet (via shale delivery line 24);

having a fluidizing medium inlet (via hydrogen input line 32);

having a fluidized bed comprising said feed, being fluidized by the fluidizing medium

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(see column 2, lines 55-63);

having an outlet for a reactor product gas (via gas outlet line 34); and

having an outlet for a solid (via outlet line 72, not labeled; column 5, lines 9-16);

wherein the feed comprises an oil shale comprising a kerogen (see column 1, lines 33-41; column 3, lines 5-42). Note the operating temperature of the reactor 10 provides no further structural limitation to the claim, since the operating temperature is not considered an element of the apparatus, but rather, a process limitation. In any event, Hoekstra further discloses a reactor operating temperature of about 1500°F or lower (see column 3, line 74 to column 4, line 5).

Regarding claims 35 and 38, Hoekstra (Figure; column 3, lines 5-42) discloses a feed introducing system (i.e., comprising grinder or crusher 12) which provides a fluidizable feed to the feed inlet 24, with the feed comprising feed pieces having a dimension of 1 inch or less (i.e., "oil shale should be about one inch in diameter or less.").

Regarding claim 40, Hoekstra (Figure; column 3, lines 54-61; column 4, lines 50-62) discloses the reactor system further comprises a hydrogen recycling system (including hydrogen recycle lines 60/62/64) positioned downstream of the gas outlet 34.

Regarding claim 41 and 42, Hoekstra (Figure; column 4, lines 7-40) discloses a separator comprising a cyclone (i.e., cyclone separators 40) which removes entrained solids from the reactor product gas.

Regarding claim 43, Hoekstra (Figure) discloses the feed inlet (via line 24, near the base of reactor 10) and the fluidizing medium inlet (via line 32) are positioned for co-current flow.

Regarding claim 44, Hoekstra (Figure; column 3, line 54 to column 4, line 5; column 4, lines 33-40, 50-67) discloses the hydrogen recycling system comprises:

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a separating device (i.e., fractionator **52**) for removing a portion of hydrocarbon from the reactor product gas (i.e., via gas oil fraction outlet line **56**) and for producing a gas comprising a recycle hydrogen (i.e., via an upper outlet line **60**);

a recycle hydrogen gas stream (i.e., hydrogen recycle line **62**);

a make-up hydrogen feed stream (i.e., from make-up hydrogen source **30**);

a mixing device (i.e., the intersection of hydrogen recycle line **62** with hydrogen input line **32**, inherently defining a mixing device) for admixing the recycle hydrogen in line **62** with the make-up hydrogen from source **30**;

a heater (i.e., hydrogen heater **38**) for heating at least said make-up hydrogen **30**; and

a compressor (i.e., compressor **36**) for pressuring at least the make-up hydrogen **30**.

Regarding claim 45, Hoekstra (Figure; column 4, lines 7-16) discloses a heat exchanger (i.e., solids heat exchanger **28**) to recover heat from a gas having a component (i.e., in gas outlet line **34**) which has exited the reactor **10**.

Regarding claim 46, Hoekstra (Figure; column 4, lines 40-50) discloses a gas-liquid separator (i.e., fractionator **52**) for separating a condensable hydrocarbon from a gas stream (via lines **60**, **54**, **56** and/or **58**).

Regarding claim 51, Hoekstra (Figure; column 3, lines 5-42) discloses the feed having a piece size capable of passing through a one inch mesh (i.e., "oil shale should be about one inch in diameter or less."), wherein the fluidized bed comprises the feed and is fluidized by hydrogen (see column 2, lines 55-63). Additionally, the apparatus is adapted to recycle a gas comprising hydrogen (i.e., via recycle lines **60,62,64**) and is inherently adapted to control a methane level by having a gas purge (i.e., via side streams from fractionator **52**, or a gas stream (unlabeled) from

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cyclone 44, etc.). No further structural limitations are recited, since the reactor operating temperature, the reactor operating pressure, and the hydrogen feed temperature are not considered elements of the apparatus but rather, process limitations. In any event, Hoekstra discloses the reactor having an operating temperature of about 1000°F or lower (i.e., about 700°F - 900°F) and an operating pressure of 450 psi or greater (i.e., 200 - 2000 psig, or preferably, about 400 - 600 psig), as well as means (i.e., hydrogen heater 38) that are inherently capable of preheating the hydrogen feed to a temperature of about 1500°F or lower (column 3, line 54 to column 4, line 6).

Instant claims 34, 35, 38, 40-46, and 51 structurally read on the apparatus of Hoekstra.

5. Claims 23-30, 35-37 and 50 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hoekstra (US 3,565,751).

Regarding claim 23, Hoekstra (Figure) discloses a reactor system comprising:  
a fluidized bed reactor (reactor vessel 10),  
having a feed inlet (via feed delivery line 24);  
having a fluidizing medium inlet (via hydrogen input line 32);  
having a fluidized bed comprising said feed, being fluidized by the fluidizing medium  
(see column 2, lines 55-63);  
having an outlet for a reactor product gas (via gas outlet line 34); and  
having an outlet for a solid (via outlet line 72, not labeled; column 5, lines 9-16),  
wherein the feed comprises an oil shale comprising a kerogen (see column 1, lines 33-41;  
column 3, lines 5-42). Note that a recitation of the operating temperature of the reactor 10  
provides no further structural limitation to the claim, since the operating temperature is not



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considered an element of the apparatus, but rather, a process limitation.

Although Hoekstra is silent as to whether the oil shale may instead comprise a tar sand comprising bitumen, the apparatus of Hoekstra structurally meets the claims, since the prior art structure is inherently capable of performing the intended use of converting tar sand into synthetic crude oil. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969), and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims, *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a feed comprising tar sand for the feed comprising oil shale in the apparatus of Hoekstra, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because it is well known in the art that carboniferous materials, such as tar sands and oil shales, constitute interchangeable feeds for the production of synthetic crude oil under hydrogenation and/or hydrocracking conditions.

Regarding claim 24, Hoekstra (Figure; column 3, lines 54-61; column 4, lines 50-62) discloses the reactor system further comprises a hydrogen recycling system (including hydrogen recycle lines **60/62/64**) positioned downstream of the gas outlet **34**.

Regarding claims 25 and 26, Hoekstra (Figure; column 4, lines 7-40) discloses a separator comprising a cyclone (i.e., cyclone separators **40**) which removes entrained solids from the reactor product gas.

Regarding claim 27, Hoekstra (Figure) discloses the feed inlet (via line **24**, near the base

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of reactor **10**) and the fluidizing medium inlet (via line **32**) are positioned for co-current flow.

Regarding claim 28, Hoekstra (Figure; column 3, line 54 to column 4, line 5; column 4, lines 33-40, 50-67) discloses the hydrogen recycling system comprises:

a separating device (i.e., fractionator **52**) for removing a portion of hydrocarbon from the reactor product gas (i.e., via gas oil fraction outlet line **56**) and for producing a gas comprising a recycle hydrogen (i.e., via an upper outlet line **60**);

a recycle hydrogen gas stream (i.e., hydrogen recycle line **62**);

a make-up hydrogen feed stream (i.e., from make-up hydrogen source **30**);

a mixing device (i.e., the intersection of hydrogen recycle line **62** with hydrogen input line **32**, inherently defining a mixing device) for admixing the recycle hydrogen in line **62** with the make-up hydrogen from source **30**;

a heater (i.e., hydrogen heater **38**) for heating at least said make-up hydrogen **30**; and

a compressor (i.e., compressor **36**) for pressuring at least the make-up hydrogen **30**.

Regarding claim 29, Hoekstra (Figure; column 4, lines 7-16) discloses a heat exchanger (i.e., solids heat exchanger **28**) to recover heat from a gas having a component (i.e., in gas outlet line **34**) which has exited the reactor **10**.

Regarding claim 30, Hoekstra (Figure; column 4, lines 40-50) discloses a gas-liquid separator (i.e., fractionator **52**) for separating a condensable hydrocarbon from a gas stream (via lines **60**, **54**, **56** and/or **58**).

Regarding claims 35-37, Hoekstra (Figure; column 3, lines 5-42) discloses a feed introducing system (i.e., comprising grinder or crusher **12**) which provides feed to the feed inlet **24**, with the feed comprising feed pieces having a dimension of 1 inch or less (i.e., "oil shale

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should be about one inch in diameter or less.”). Inherently, the feed introducing system will comprise some sort of screening device to remove pieces of feed which have a dimension greater than about 1 inch (i.e., pieces of feed material which are not fluidizable) from being fed to the reactor **10**, as evidenced by the disclosure than only particles of a suitable size are contained in feed line **24**.

Regarding claim 50, Hoekstra (Figure; column 3, lines 5-42; column 3, line 54 to column 4, line 6) discloses means for supplying a feed having a piece size capable of passing through a one inch mesh (i.e., a grinder or crusher **12**, for delivering feed at “about one inch in diameter or less.”), wherein the fluidized bed comprises the feed and is fluidized by hydrogen (see column 2, lines 55-63). Additionally, the apparatus is adapted to recycle a gas comprising hydrogen (i.e., via recycle lines **60,62,64**) and is inherently adapted to control a methane level by having a gas purge (i.e., via side streams from fractionator **52**, or a gas stream (unlabeled) from cyclone **44**, etc.). No further structural limitations are recited, since the reactor operating temperature, the reactor operating pressure, and the hydrogen feed temperature are not considered elements of the apparatus but rather, process limitations. In any event, Hoekstra discloses the reactor is inherently capable of maintaining an operating temperature of about 1000°F or lower (i.e., about 700°F - 900°F) and an operating pressure of 450 psi or greater (i.e., 200 - 2000 psig, or preferably, about 400 - 600 psig). Additionally, the system is inherently capable of preheating the hydrogen feed to a temperature of about 1500°F or lower (i.e., via hydrogen heater **38**).

Instant claims 23-30, 35-37 and 50 structurally read on the apparatus of Hoekstra.

6. Claims 31-33 and 47-49 are rejected under 35 U.S.C. 103(a) as obvious over Hoekstra (US 3,565,751) in view of Rosen et al. (US 3,960,700).

Regarding claim 31 and 47, Hoekstra is silent as to providing a scrubbing system, located downstream of the gas-liquid separator **52**, to remove impurities from the gas stream for producing a substantially pure hydrogen recycle stream. Rosen et al. (Figure; column 4, lines 21-32) teaches a system for the hydrogenation of a carbonaceous material including oil shale or tar sand (column 2, lines 14-25) in a suitable reactor (column 4, lines 43-49), wherein the system comprises a scrubber system (labeled, SCRUBBER) having an inlet connected to a gas-liquid separator (labeled, LIQUID PRODUCT RECOVERY), wherein the gas stream flows from the gas-liquid separator into the inlet of the scrubbing system, to remove impurities from the gas stream and produce a substantially pure hydrogen recycle stream (labeled, RECYCLE GAS). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a scrubbing system downstream of the gas-liquid separator **52** in the system of Hoekstra, because the addition of a scrubber system would enable further purification of the hydrogen recycle stream, thereby minimizing reintroduction of deleterious components to the reactor, removing noncondensing products or components, and maintaining a desirable hydrogen-to-carbonaceous material weight ratio within the reactor through controlled metering, as taught by Rosen et al. (column 2, lines 25-48).

Regarding claims 32, 33, 48 and 49, Hoekstra (Figure) is silent as to providing a single compressor for recycling the mixture of recycle hydrogen feed (i.e., in line **62**) and make-up hydrogen feed (i.e., from source **30**) to the heater (i.e., hydrogen heater **38**). In contrast, Hoekstra discloses a plurality of compressors **66** and **36** for compressing, separately, the recycle hydrogen feed and the make-up hydrogen feed, prior to the two streams being combined and mixed within line **32**. In any event, it would have been obvious for one of ordinary skill in the

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art at the time the invention was made to substitute a single compressor (i.e., to be placed in the hydrogen mixture line 32) for the plurality of compressors 66, 36 in the apparatus of Hoekstra, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because the integration of parts or process steps involves routine skill in the art. Rosen et al. (Figure; column 2, lines 38-48; column 3, lines 11-25) evidences such conventionality by teaching a system comprising a single compressor (labeled, HYDROGEN COMPRESSION AND METERING), wherein the hydrogen recycle stream (labeled, RECYCLE GAS) and make-up hydrogen stream (labeled, MAKE UP H<sub>2</sub>) are combined prior to being simultaneously compressed to form a pressurized hydrogen mixture within the HYDROGEN COMPRESSION AND METERING apparatus, for feeding to the reactor at a desired hydrogen-to-carbonaceous material weight ratio. Similar to Hoekstra, Rosen et al. also teaches the pressurized hydrogen mixture flows from the mixing device/compressor and then through a heat exchanger or heater (labeled, HYDROGEN PRE-HEATER), prior to being fed to the reactor.

7. Claims 39 and 54 are rejected under 35 U.S.C. 103(a) as obvious over Hoekstra (US 3,565,751).

Hoekstra (Figures; column 3, lines 43-53; column 4, lines 6-32) discloses said feed introducing system comprises means for maintaining the feed at a desired temperature (i.e., dilute phase solids heat exchanger 28, for preheating the feed with the hot, spent shale in line 34). Although Hoekstra is silent as to the feed temperature being, specifically, "about 100°F or lower", it would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the heat exchanger to heat the feed to a suitable temperature, such as one of the instantly recited temperatures, in the apparatus of Hoekstra, because it has been held that

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where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

8. Claims 52 and 53 are rejected under 35 U.S.C. 103(a) as obvious over Hoekstra (US 3,565,751) in view of Matheson (US 2,614,069).

Hoekstra is silent as to the feed inlet (i.e., via line **24**) and fluidizing medium inlet (i.e., via line **32**) being positioned for counter-current flow. In contrast, the inlets **24**, **32** are arranged for co-current flow, with the feed being introduced via line **24** near the base of the reactor. The coarse shale feed is substantially reduced in particle size as the feed travels upwards, co-currently with the fluidizing medium, wherein relatively fine, spent shale particles exit the top of the reactor **10** via outlet **34**, (column 3, lines 5-42).

Matheson teaches a fluidized bed reactor for contacting a carbonaceous solid, such as oil shale or tar sand (column 4, lines 28-35) with a fluidizing gas in order to convert the solids into useful hydrocarbons. The reactor (Figure) comprises a feed inlet (i.e., via line **10**) and a fluidizing medium inlet (i.e., via line **15**, grid **13**) that are positioned for counter-current flow.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the feed inlet **24** and fluidizing medium inlet **32** in the apparatus of Hoekstra for counter-current flow, on the basis of suitability for the intended use and absent showing any unexpected results thereof, because,

“small particles tending to rise upwardly through the fluidized bed encounter an excess of coarse particles and the large particles tending to sink to the bottom of the fluidized bed encounter an excess of small particles in their respective directions of classification so as to establish the particle size distribution adequate for proper fluidization within the center as well as within the top and bottom portions of the fluidized mass,”

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as taught by Matheson (column 3, line 50 to column 4, line 11; specifically, column 3, line 72 to column 4, line 6).

*Response to Arguments*

9. Applicant's arguments filed on October 12, 2004 have been fully considered but they are not persuasive.

On page 15 (first paragraph), Applicants argue,

“Hoekstra ‘751 discloses a different technology. Applicant asserts Hoekstra ‘751 employs a fluidized bed of catalyst and is designed such that the catalyst particles are large enough to be retained within the reactor during its operation. Applicants’ claimed invention does not rely on a fluidized catalyst bed and does not require the retention of catalyst particles as disclosed by Hoekstra ‘751. As claimed, the feed itself becomes the fluidized bed.”

The Examiner respectfully disagrees and asserts that applicants’ arguments are not commensurate with the language of the claims. Note that as claimed, the apparatus comprises, “said reactor having a fluidized bed comprising said feed.” The transitional term “comprising” is inclusive or open-ended and does not exclude additional, unrecited elements. The named elements are essential, but other elements may be added and still form a construct within the scope of the claim. (see MPEP 2111.03). The reactor of Hoekstra meets the claims as it clearly comprises the essential feed component as claimed. Furthermore, it is noted that applicants’ arguments, which suggests that the technology of the invention excludes the use of a fluidized catalyst bed, is not commensurate with applicants’ own disclosure, which clearly suggests that, “it may be advantageous to add additional catalyst,” (specification, page 7, line 16).

On page 17 (second paragraph), Applicants further argue,

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“Rosen ‘700 does not appear to disclose a fluidized bed reactor. Teaching away, Rosen ‘700 states “The heart of the invention resides in the concept of a short total residence time” (col. 1, lines 59-63). Residence times of “about 2 milliseconds to less than 2 seconds” are disclosed (col. 1, lines 46-47). As such the reactor technologies of both Rosen ‘700 and Hoekstra ‘571 disclose reactors and process technology different from the invention claimed by Applicants.”

The Examiner respectfully disagrees. Please note that the Rosen reference was merely relied upon to illustrate the conventionality and advantages of providing a “scrubber system” to known apparatuses used for the hydrogenation of oil shale or tar sands. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Regarding arguments made with respect to the rejection of claims 25 and 26 under 35 U.S.C. 103(a) as being unpatentable over Hoekstra in view of Matheson (beginning at the bottom of page 15), Applicant's arguments have been considered but are moot in view of the new grounds of rejection as necessitated by the amendment to said claims.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

As set forth in 37 CFR 1.136(a), a shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply



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is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


\* \* \*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung

December 17, 2004 

  
**HIEN TRAN**  
**PRIMARY EXAMINER**